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GRAPHICAL COMPUTING TABLE

BY W.H.BIXBY, CORPS OF ENGINEERS, U.S. ARMY, 1879.
AFTER THE METHOD OF LÉON LALANNE, CORPS OF PONTS & CHAUSSEES, FRANCE

$$\text{WEIGHT OF IRON CYLINDERS IN TONS}$$

$$\frac{\pi D^2 H}{12} \cdot \frac{484}{2240} = \frac{1}{1.78} \text{ D.H.T.}$$

D = MEAN DIAM. IN FT.
H = HEIGHT IN FT.
T = THICKNESS IN INCHES

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SINES AND COSINES		SINES	COSINES	1° 179°	
0.010	0.010	0.010	0.010	89°	91°
^	v	SUBDIVISION OF ARCS	NUMBERS	0.01	0.02
1°	0°	SINES	6° 174°	7° 173°	8° 172°
^	v	COSINES	84° 96°	83° 97°	82° 98°
SUBDIVISION OF ARCS	NUMBERS	0.1	0.2	81° 99°	80° 100°

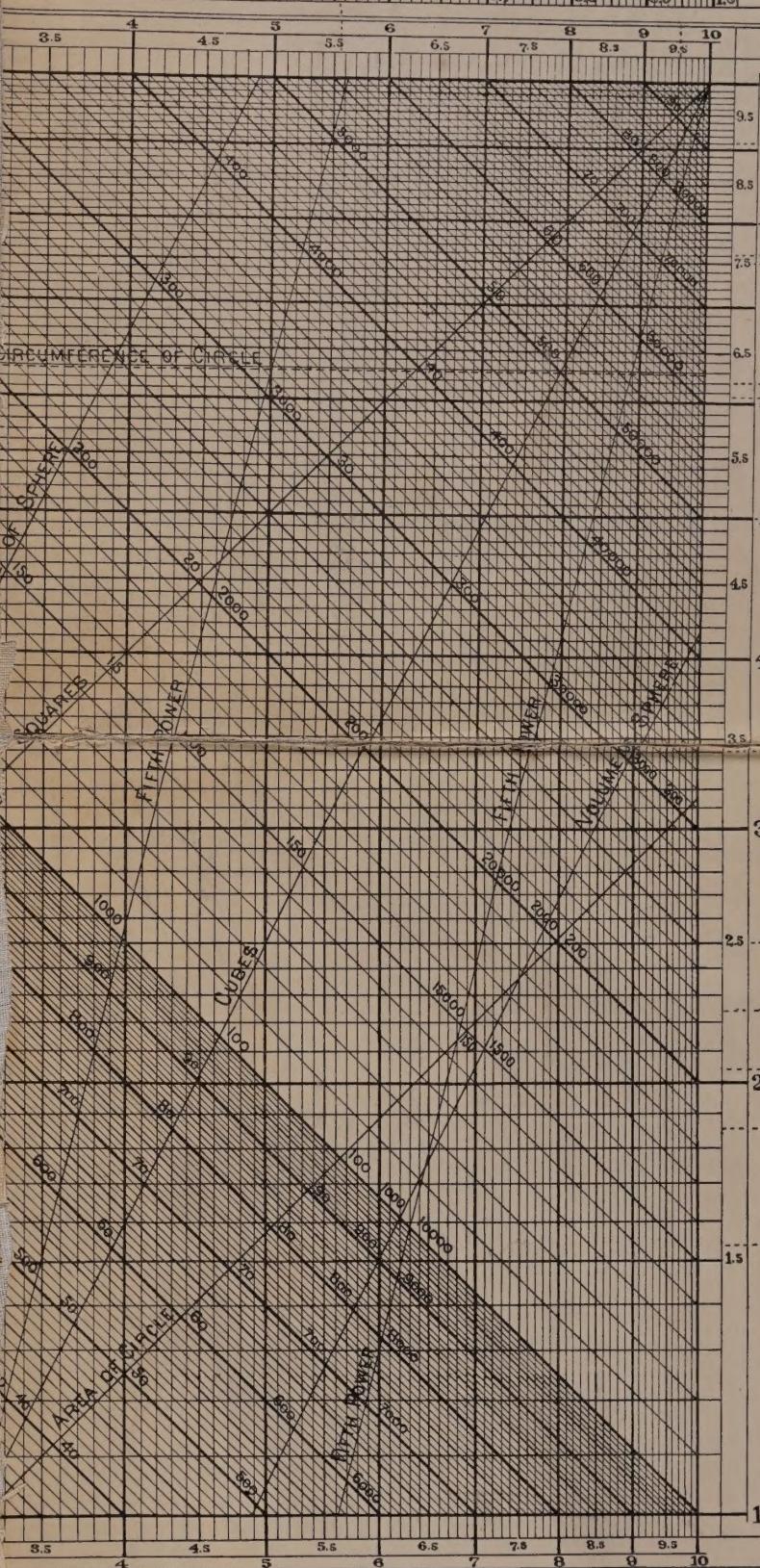
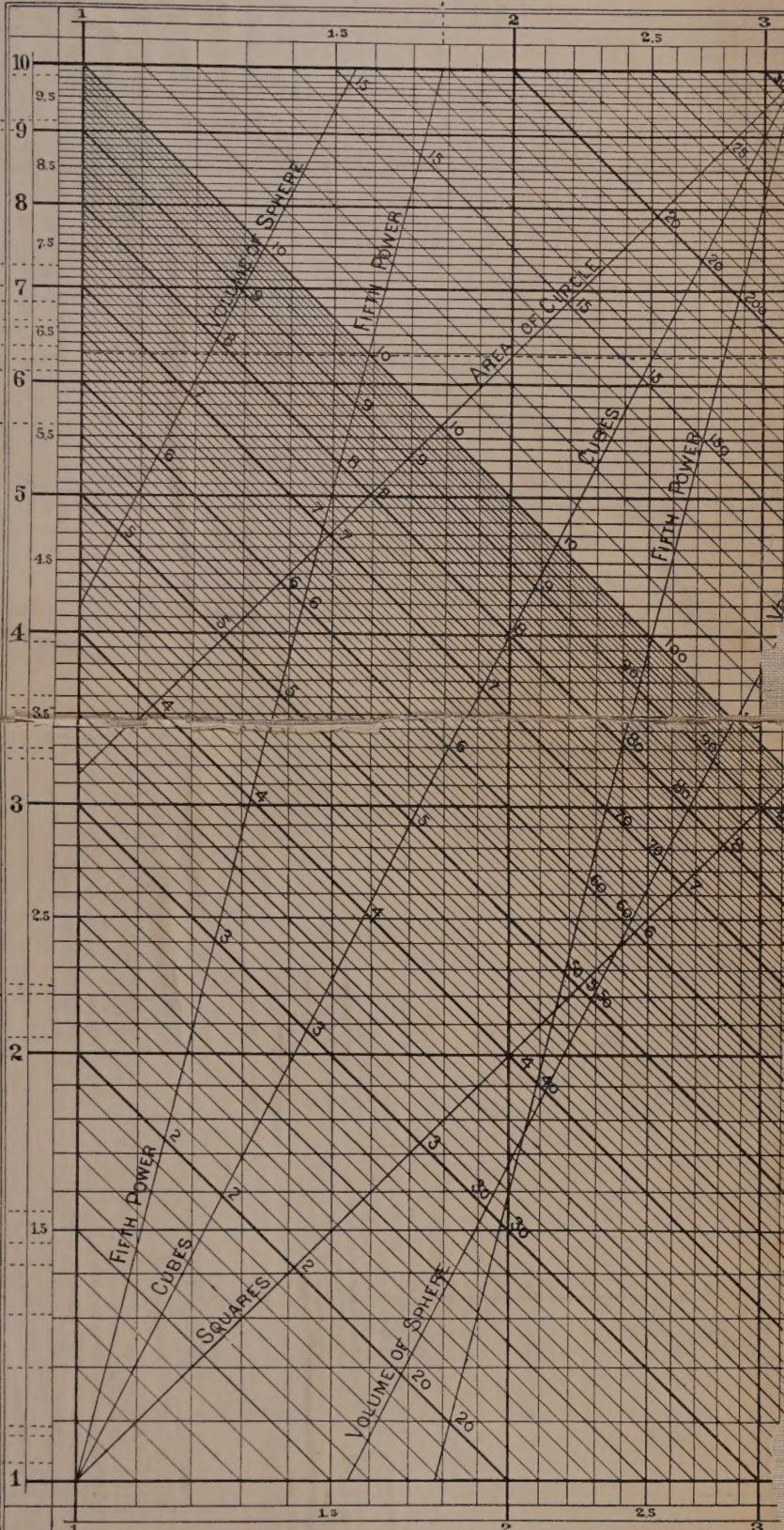
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WEIGHT OF IRON PLATES IN TONS
 $\frac{H \cdot B \cdot T}{12 \cdot 2240} = \frac{1}{556}$ H.B.T.

$$\text{HORSE POWER} = \frac{\text{P.A.S.2R}}{\text{33000}} = \frac{\text{P.M.S.R.}}{0.0000952}$$

P = PRESSURE IN PS.
 A = AREA OF PISTON HEAD, IN SQUARE INCHES
 S = RADIUS OF PISTON HEAD IN INCHES
 S = LENGTH OF STROKE IN FEET
 R = NUMBER OF REVOLUTIONS PER MINUTE

SINES	✓✓
COSINES	✓✓
SUBDIVISION OF ARCS	✓✓
NUMBERS	✓✓
SINES	✓✓
COSINES	✓✓
SUBDIVISION OF ARCS	✓✓
NUMBERS	✓✓



	a4	b05	b06	c67	c68	c69	b10	NUMBERS SUBDIVISION OF ARCS	
	2° 178°	8° 177°		4° 178°	5° 175°			TANGENTS	^ 1 5 0 0 0
	88° 92°	87° 93°		86° 94°	85° 95°			COTANGENTS	
	i.4	i.3	i.6	i.7	i.8	i.9	i.0	NUMBERS SUBDIVISION OF ARCS	
	162° 2° 160°	25° 155°	30° 150°	35° 145°	40° 140°	45° 135°		TANGENTS	^ 1 0 0 1 0
	108° 7° 110°	65° 113°	60° 120°	55° 123°	50° 130°	45° 133°		COTANGENTS	
	14	15	16	17	18	19	10	NUMBERS SUBDIVISION OF ARCS	
	78° 105°	80° 100°	82° 98°	84° 96°				TANGENTS	^ 0 0 0 0 0
	15° 165°	10° 170°	8° 172°	6° 174°				COTANGENTS	

This Table is composed of horizontal, vertical and two sets of diagonal lines.

For ordinary operations of multiplication, the **horizontals** are **multiplicators**, the **verticals** are **multiplicands**, and the **diagonals running downward to the right** are the **products**.

In like manner in ordinary operations of division, the horizontal rows are divisors, the vertical columns are quotients, and the diagonals are dividend.

In evolution and involution, the verticals are the roots, and the diagonals running upward to the right.

It is to be determined as in the use of logarithms or of the square rule

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This table is composed of horizontal, vertical and two sets of diagonal lines. For ordinary operations of multiplication, the horizontals are multipliers, the verticals are divisors, the horizontals are quotients, the verticals are remainders. In like manner in ordinary operations of division, the horizontals are dividends, the verticals are divisors, the horizontals are quotients, the verticals are remainders. In evolution and involution, the verticals are roots, and the diagonals running upward from left to right are surds or powers. The position of the decimal point is to be determined as in the use of logarithms or of the slide rule.

